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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/098,544	06/17/1998	TAKAAKI ENDO	2355.10102	4229

5514 7590 10/08/2002

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EXAMINER

LEE, RICHARD J

ART UNIT PAPER NUMBER

2613

DATE MAILED: 10/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
**09/098,544**

Applicant(s)  
**Endo et al**

Examiner  
**Richard Lee**

Art Unit  
**2613**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jul 24, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11, 17, and 24-26 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 17, and 24-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 17, 18 6) ☐ Other:

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Lanckton et al of record (5,517,419).

Lanckton et al discloses an advanced terrain mapping system as shown in Figure 1, and the same image recording apparatus for recording images sensed by at least two image sensing means attached to a vehicle as claimed in claims 1-5, comprising the same first image sensing means which is arranged to have an image sensing direction agreeing with a first direction of the vehicle, wherein the first image sensing means comprises a plurality of cameras, image sensing directions of which are deployed symmetrically about the first direction, wherein straight lines on the image sensing directions of the plurality of cameras cross each other in front of the plurality of cameras (see column 4, lines 9-19, column 7, line 15 to column 8, line 29); second image sensing means which is arranged at a position separated a known distance from the first image sensing means to have an image sensing direction agreeing with a second direction substantially 180 degrees different from the first direction, wherein the second image sensing means comprises a plurality of cameras, image sensing directions of which point in at least two directions symmetrical about the second direction (see column 7, line 15 to column 8, line 29); recording means for, when the vehicle travels in the first direction, associating first image data sensed by the first image sensing

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means with second image data sensed by the second image sensing means and recording the first and second image data sensed with information concerning a time difference based on the known distance and a velocity of the vehicle (i.e., image and position data are correlated for a given area of terrain in order to record and retrieve positioning information thereby providing the recording of image data with information concerning a time difference based on the known distance, and the actual rate at which image data is captured and recorded is based on the speed (velocity) of the vehicle, see column 2, lines 35-38, column 4, lines 9-19, column 7, line 15 to column 8, line 29, and column 10, lines 19-31); and third image sensing means which is arranged at a position near the first image sensing means to have an image sensing direction agreeing with a third direction different from the first direction, and fourth image sensing means which is arranged at a position symmetrically to the third direction about a straight line pointing in the first direction (see column 7, line 15 to column 8, line 29).

In addition, Lanckton et al shows the same image database apparatus for generating a database used for building a three-dimensional image space from image sequences sensed by a plurality of image sensing means attached to a vehicle after acquisition of image data (see columns 9-12) as claimed in claims 10 and 11, comprising the same first reader for reading data from a first image memory recorded by first image sensing means pointed in a first direction (see columns 4, lines 9-20, column 7, line 15 to column 8, line 29, column 10, lines 19-31, lines 58-67, column 13, lines 8-12); a second reader for reading data from a second image memory recorded by second image sensing means which is arranged at a position separated a known distance from the first

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image sensing means to point in a second direction substantially 180 degrees different from the first direction (see columns 4, lines 9-20, column 7, line 15 to column 8, line 29, column 10, lines 19-31, lines 58-67, column 13, lines 8-12); a third reader for reading data from a third memory which records a moving position and traveling direction of the vehicle, and means for associating image data read by the first reader, and image data read by the second reader based on time duration information based on the known distance and a velocity of the vehicle, with each other when traveling direction data read by the third reader indicates that the vehicle is traveling substantially straight (i.e., image and position data are correlated for a given area of terrain in order to record and retrieve positioning information thereby providing the recording of image data with information concerning a time difference based on the known distance, and the actual rate at which image data is captured and recorded is based on the speed (velocity) of the vehicle, see column 2, lines 35-38, columns 4, lines 9-19, column 5, lines 24-36, column 6, lines 25-67, column 7, line 15 to column 8, line 29, column 8, lines 59-67, column 9, lines 11-55, column 10, lines 19-31, lines 58-67, column 13, lines 8-12); and wherein when the second image sensing means includes two cameras having different directions (see column 7, line 15 to column 8, line 29), the associating means associates image data read by the first reader and image data at a position the known distance later of those read by the second reader from the camera located at a counterclockwise or clockwise position each other, when the traveling direction data read by the third reader indicates a clockwise or counterclockwise turn (see column 4, lines 9-19, lines 52-58, column 7, line 15 to column 8, line 29, column 9, lines 24-55, column 10, lines 19-31, lines 58-67)

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3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6-9 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lanckton et al as applied to claims 1-5, 10, and 11 in the above paragraph (2), and further in view of Lachinski et al of record (5,633,946).

Lanckton et al discloses substantially the same image recording apparatus as above, further including wherein the plurality of cameras have two cameras, and the image sensing directions of the cameras cross each other on an extending line of the second direction, wherein the plurality of cameras have first to third cameras, the first camera has an image sensing direction agreeing with the second direction, and the image sensing directions of the second and third cameras are respectively turned clockwise and counterclockwise to be deployed symmetrically about the second direction (see column 4, lines 9-19, column 7, line 15 to column 8, line 29).

Lanckton et al does not particularly disclose, though, the followings:

(a) selecting the camera which points at a larger angle in a counterclockwise or clockwise direction from the plurality of cameras depending on whether the vehicle has turned clockwise or counterclockwise from the first direction as claimed in claims 6 and 17; and

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(b) the selection means selects the first camera when the vehicle travels in the first direction, the second camera when the vehicle turns counterclockwise, and the third camera when the vehicle turns clockwise as claimed in claim 8.

Regarding (a) and (b), the particular selection of any desired camera from a plurality of cameras in general is old and well recognized in the art. For example, Lachinski et al discloses a method and apparatus for collecting and processing visual and spatial position information from a moving platform as shown in Figures 1-4, and teaches the conventional use of a digital matrix router 23 of Figures 3 and 4 for providing any desired or selected image source(s) from video cameras 50 and four view generator 62 (see column 4, lines 35 to column 5, line 40, column 7, and Figures 3 and 4). In addition, it is considered obvious that if such image video sources may be selected by Lachinski et al, then such video sources may be selected from the plurality of cameras so as to provide one that produces a larger angle view. Essentially, if an object of interest is desired to be obtained, it is certain that the camera closest to the object will provide the largest angle of the image from among the plural cameras. And since Lachinski et al teaches the selective image source(s) from among a plurality of cameras, it is obvious that the one providing the largest angle may be selected, or for that matter the first, second, or third camera may be selected, for further processings as claimed. Therefore, it would have been obvious to one of ordinary skill in the art, having the Lanckton et al and Lachinski et al references in front of him/her and the general knowledge of camera selection features, would have had no difficulty in providing the digital matrix router 23 of Figures 3 and 4 of Lachinski et al for the advanced

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terrain mapping system as shown in Figure 1 of Lanckton et al so as to provide substantially the same if not the same desired camera selections for the same well known purposes as claimed.

5. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iijima et al (6,236,748) in view of Lanckton et al.

Iijima et al discloses a compound eye image pickup device as shown in Figures 1-3, and substantially the same image processing method as claimed in claim 24 for synthesizing first image data sensed by a first image sensing means (i.e., 10L of Figure 3) with second image data sensed by a second image sensing means (i.e., 10R of Figure 3), wherein the first and second image sensing means are arranged separately with a known distance between them, the first image sensing means is arranged to have an image sensing direction aligned with a first direction, the second image sensing means is arranged to have an image sensing direction aligned with a second direction different from the first direction, the method comprising retrieving image data sensed at a first instant from among a group of the first image data (i.e., 31L of Figure 3); retrieving image data sensed at a second instant from among a group of the second image data, where the second time instant is a time occurring after the first instant by a time period corresponding to the known distance between the first image sensing means and the second image sensing means (i.e., 31R of Figure 3); and synthesizing the image data retrieved at the first time instant and the second time instant to make panoramic image data (i.e., 38 of Figure 3, and see column 1, lines 12-48, column 3, lines 3-8, column 4, lines 3-11).



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Iijima et al does not particularly disclose, though, the followings:

(a) wherein the first and second image sensing means are arranged separately on a mobile object, each of the first and second image data is recorded with information indicating when the image data was sensed as claimed in claim 24; and

(b) wherein the time period between the first time instant and the second time instant is determined from the known distance and a velocity of the mobile object at the time the first and second images were sensed; and wherein each of the first and second image data is recorded with information indicating where the image was sensed as claimed in claims 25 and 26.

Regarding (a) and (b), Lanckton et al discloses an advanced terrain mapping system as shown in Figure 1, and the teaches the use of plural image sensing means arranged separately on a mobile object (see column 7, lines 15-65), wherein the time period between the first time instant and the second time instant is determined from the known distance and a velocity of the mobile object at the time the first and second images were sensed, and wherein each of the first and second image data is recorded with information indicating where the image was sensed (i.e., image and position data are correlated for a given area of terrain in order to record and retrieve positioning information thereby providing the recording of image data with information concerning a time difference based on the known distance, and the actual rate at which image data is captured and recorded is based on the speed (velocity) of the vehicle, see column 2, lines 35-38, column 4, lines 9-19, column 5, lines 24-36, column 6, lines 25-67, column 7, line 15 to column 8, line 29, and column 10, lines 19-31). Regarding the first and second image data being recorded

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with information indicating when the image data was sensed, the Examiner takes Official Notice that such image data recording with time information is old and well recognized in the art.

Therefore, it would have been obvious to one of ordinary skill in the art, having the Iijima et al and Lanckton et al references in front of him/her and the general knowledge of the synthesizing and recording of images, would have had no difficulty in providing plural sensing means being arranged separately on a mobile object, the recording of first and second image data with information indicating where the image was sensed, and wherein the time period between the first time instant and the second time instant is determined from the known distance and a velocity of the mobile object at the time the first and second images were sensed all as taught by Lanckton et al as part image pickup and display system of Iijima et al for the same well known image synthesizing and recording purposes as claimed.

6. Regarding the applicants' arguments at pages 9-10 of the amendment filed July 24, 2002 concerning in general that "... As recited in Claims 1, 6, and 17, the present invention includes the feature, inter alia, of recording first and second image data ... with information based on the known distance between the first and second image sensing means and the velocity of a vehicle. As recited in Claim 10, the present invention includes ... the feature of associating image data read by a first reader and image date read by a second reader ... Applicants submit that the cited art fails to disclose or suggest at lest these features ... Applicants request that the Examiner kindly clarify where that patent discloses recording information based on a known distance between cameras and a velocity of the vehicle ...", the Examiner wants to draw the applicants' attention to

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column 2, lines 35-38 where Lanckton et al teaches that the object of the present invention is to correlate image and position data for a given area of terrain in order to record and retrieve positioning information relative to key terrain features, column 4, lines 9-19 wherein Lanckton et al teaches that the trailer provides a stable platform for navigation, camera, and data recording subsystems, and column 5, lines 55-58 wherein Lanckton et al teaches that the navigation computer provides the trailer's instantaneous position and velocity vector. It is therefore clear from these passages of Lanckton et al that image and position data are correlated for a given area of terrain in order to record and retrieve positioning information thereby providing the recording of image data with information concerning a time difference based on the known distance, and the actual rate at which image data is captured and recorded is based on the speed (velocity) of the vehicle as provided by the navigation computer. As such, it is further submitted that Lanckton et al anticipates the claimed invention.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR

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1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. **Any response to this final action should be mailed to:**

**Box AF**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**


(703) 872-9314, (for formal communications; please mark "EXPEDITED  
PROCEDURE") (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.

  
RICHARD LEE  
PRIMARY EXAMINER

Richard Lee/rl



10/4/02